



## Beneficial Use of Waste Tires

### Technical Guidance Document SW 03-02

Waste tires have been beneficially reused for many different types of projects throughout Kansas. With the passage of House Bill (HB) 2247, which was signed into law in April 2003, the definition of beneficial use for waste tires was modified. The definition now includes all uses that are currently listed in K.A.R. 28-29-29a. In addition, this bill allows windbreaks for livestock, erosion control on the face of an earthen dam, and stabilization of soil or sand blow-outs. Included in the definition is a requirement that the use of the tires will cause no adverse impacts to human health or the environment and the use will comply with all applicable zoning requirements.

Another provision of this bill mandates mosquito control on all tire accumulations, regardless of the size of the accumulation. With this change, more management will be required of beneficial use sites to demonstrate that mosquitoes are being controlled.

The purpose of this technical guidance document is to set guidelines for the use of waste tires for beneficial use to assure that these pre-approved uses cause no adverse impacts to human health or the environment. Each individual considering using waste tires for the listed beneficial use should contact their local zoning authority to determine that the beneficial use will comply with all applicable zoning requirements. In all cases, when the beneficial use of the tires ceases, the tires should be disposed as waste tires in accordance with the statutes and regulations in effect at that time.

All proposed beneficial uses not listed in the following section should complete the "Application For A Waste Tire Beneficial Use Site" and provide the required supporting documentation. This application is available on the KDHE web site at [http://www.kdhe.state.ks.us/waste/bwm\\_waste\\_tires.html](http://www.kdhe.state.ks.us/waste/bwm_waste_tires.html) or it can be obtained by calling (785) 296-1600.

#### Guidelines for Pre-Approved Beneficial Uses

Each statutorily approved beneficial use for waste tires is listed below with the recommended management practices to assure that the use

causes no adverse impacts to human health or the environment. Table 1 at the end of this document summarizes these uses and their management options.

1. **Bumpers for boat docks or boats** use relatively small numbers of waste tires. Drainage\* must be provided so water will drain from the tires when the lake level recedes below the level of the tires .
2. **Playground equipment** is another area that uses a relatively small number of tires. Due to the high amount of human contact, mosquito control is very important. The preferred method of mosquito control would be to provide drainage\* for each tire. An alternate method would be to use a larvicide to control the growth of mosquitoes.
3. Large numbers of waste tires are used to hold down **silo covers** at feedlots in Kansas. KDHE recommends using sidewalls or bagel cut tires because these products will provide the weight necessary for holding the tarp down and not hold water. They can also be easily carried and stacked.

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If whole tires are to be used, mosquito control is required. This control can be provided by the use of a larvicide or any method to keep the tires drained of water. When not in use, the tires should be stored in a way that keeps them dry or mosquito control should be provided. Vegetation in the storage area should be kept mowed to lower the danger of fires.

4. Small numbers of waste tires are used in **traffic control**. These tires should have drainage\* provided to keep water from accumulating. When not in use, these tires should be stored in a manner that keeps them dry or mosquito control should be provided
5. **Feed bunks** manufactured from tires use some of the tractor tires and earth mover tires generated in the state. Tractor tires, that are turned inside out, work well because they do not hold water. The larger earth mover tires should have drainage\* provided to prevent them from becoming a place for mosquitoes to reproduce. When not in use, these tires should be stored to keep them dry or mosquito control should be provided.
6. Waste tires used for **water tanks** should be checked weekly for mosquito larva. If larva are found, mosquito control should be provided. A small gold fish or other larva eating fish works well as do larvicides that are approved for use around livestock.
7. **Windbreaks constructed of baled tires** have been in use in Kansas for some time. Baled tire windbreaks have been approved on a site specific basis as a means of beneficially using large numbers of waste tires. The overall length of an individual windbreak should not exceed 200 feet without the approval of KDHE and the height should not exceed 3 bales.

A stable base should be created and maintained to prevent the windbreak from falling if the cattle erode the soil at the base of the windbreak. Broken wires on the bales should be repaired within 3 months of discovery of the broken wire. Vegetation around the windbreak should be mowed to help prevent fires.

8. Not all windbreaks are built using baled tires. **Windbreaks constructed using tires that are not baled** are limited to no more than 200 feet without the approval of KDHE and the stacked tires should be no more than 8 feet high. Poles, either in the center of the tire stacks or placed next to the tire stacks, should be used for stabilizers. To prevent mosquitoes from reproducing in the tires, the tires should be filled with sand or soil. Past experience has shown that tires with holes for drainage that are not filled with sand or soil can become unstable and the tires will fill with water. Holes in these tires become plugged with leaves or other debris and therefore do not drain the water from the tires. Vegetation around the windbreak should be mowed to prevent fires.
9. Waste tires used for **erosion control on the face of an earthen dam** should be placed correctly to assure longevity of the project. Having the project designed by a professional engineer will help to assure success. All tires used should be filled with small rock or mortar that will not wash out from the wave action. The rows of tires should be offset for stability and they should extend below the normal water level to prevent wave action from causing erosion under the tires that could cause the project to fail.
10. The use of discarded tires for **stabilization of soil or sand blow-outs caused by wind** on sandy rangeland has

been practiced for several decades. This method is a common practice in the Sandhills area of Nebraska and has been used to some extent in Kansas. Tires have also been used for erosion control along pipeline and cable right-of-ways, and around utility poles and fence posts.

As a general rule, sites should be under  $\frac{1}{2}$  acre and preferably under  $\frac{1}{4}$  acre. Discarded tires should be used when no other method is feasible. The following are alternate erosion control options for areas larger than  $\frac{1}{2}$  acre:

- Spreading animal manure over the area, and working it into the surface with an appropriate seed mix.
- Sowing an appropriate seed mix and mulching with straw or hay.

The waste tires can be arranged in two ways. The preferred option is a random pattern that does not allow wind to find a straight line path through the tires. An alternate is to lay straight lines of tires perpendicular to the

prevailing wind. This may be necessary when the blowout is on the side of a dune.

In most cases, seeding the entire blowout area is not feasible. Hand seeding and incorporating small amounts of an appropriate seed mix inside the tire after it is placed should be considered.

Monitor the site regularly. Tires may be left in place until adequate vegetative cover has developed to assure that the blowout is stable. At this point, any or all tires should be removed if their removal will not cause damage to the new vegetative cover. Tires that are partially ( $\frac{1}{2}$  or more) buried in the soil probably should not be removed. Active sand movement may still be possible.

### **Future Regulations**

The guidelines presented in this technical guidance document will be converted to regulations in accordance with departmental authorities provided in K.S.A. 65-3424 and K.S.A. 65-3406(a)(16).

\*Drainage is typically provided by cutting holes of sufficient size and number in the sidewall or tread of a tire so water can drain from the tire's interior. Alternate methods may be used to prevent water from accumulating in tires.

For additional information regarding proper management of solid waste, you may contact the Bureau of Waste Management at (785) 296-1600 or the address at the top of this document or visit the Bureau's website at [www.kdhe.state.ks.us/waste](http://www.kdhe.state.ks.us/waste).

**Table 1**  
**Summary of Beneficial Tire Uses with Recommended Options for Management**

	Store to Keep Dry*	Provide Drainage*	Larvicide*	Larva Eating Fish*	Stabilized Base.	Broken Wires Repaired Within 3 Months	Vegetation Around Tires	>200 Foot Length Max.	3 Bales High Max.	8 Foot High Max.	Filled with Soil or Sand*	Poles Used for Stabilizers	Filled with Small Rock or Mortar	Offset Rows	Site Under ½ Acre	Placed in Random Pattern	Arranged in Straight Lines Perpendicular to Prevailing Winds
Bumpers for Boat Docks or Boats		X															
Playground Equipment		X	X														
Silo Covers	X	X	X				X										
Traffic Control	X	X	X				X										
Feed Bunks	X	X	X				X										
Water Tanks	X		X	X			X										
Windbreaks Constructed of Baled Tires					X	X	X	X	X								
Windbreaks Constructed Using Tires that are not Baled					X		X	X		X	X	X					
Erosion Control on the Face of an Earthen Dam												X	X				
Stabilization of Soil or Sand Blow-outs Caused by Wind															X	X	X

\*Note: One of more of the above options may be used to achieve mosquito control.